

WO 2005/047317

1/13

SEQUENCE LISTING

<110> Nordlund, Henri Rainer et al.

<120> Avidin mutants

<130> BP110588

<160> 29

<170> PatentIn version 3.1

<210> 1

<211> 152

<212> PRT

<213> Gallus gallus

<400> 1

Met Val His Ala Thr Ser Pro Leu Leu Leu Leu Leu Leu Ser Leu  
 1 5 10 15

Ala Leu Val Ala Pro Gly Leu Ser Ala Arg Lys Cys Ser Leu Thr Gly  
 20 25 30

Lys Trp Thr Asn Asp Leu Gly Ser Asn Met Thr Ile Gly Ala Val Asn  
 35 40 45

Ser Arg Gly Glu Phe Thr Gly Thr Tyr Ile Thr Ala Val Thr Ala Thr  
 50 55 60

Ser Asn Glu Ile Lys Glu Ser Pro Leu His Gly Thr Gln Asn Thr Ile  
 65 70 75 80

Asn Lys Arg Thr Gln Pro Thr Phe Gly Phe Thr Val Asn Trp Lys Phe  
 85 90 95

Ser Glu Ser Thr Thr Val Phe Thr Gly Gln Cys Phe Ile Asp Arg Asn  
 100 105 110

Gly Lys Glu Val Leu Lys Thr Met Trp Leu Leu Arg Ser Ser Val Asn  
 115 120 125

Asp Ile Gly Asp Asp Trp Lys Ala Thr Arg Val Gly Ile Asn Ile Phe  
 130 135 140

Thr Arg Leu Arg Thr Gln Lys Glu  
 145 150

<210> 2

<211> 298

&lt;212&gt; PRT

&lt;213&gt; Gallus gallus

&lt;400&gt; 2

Met Val His Ala Thr Ser Pro Leu Leu Leu Leu Leu Leu Ser Leu  
 1 5 10 15

Ala Leu Val Ala Pro Gly Leu Ser Ala Arg Lys Arg Thr Gln Pro Thr  
 20 25 30

Phe Gly Phe Thr Val Asn Trp Lys Phe Ser Glu Ser Thr Thr Val Phe  
 35 40 45

Thr Gly Gln Cys Phe Ile Asp Arg Asn Gly Lys Glu Val Leu Lys Thr  
 50 55 60

Met Trp Leu Leu Arg Ser Ser Val Asn Asp Ile Gly Asp Asp Trp Lys  
 65 70 75 80

Ala Thr Arg Val Gly Ile Asn Ile Phe Thr Arg Leu Arg Thr Gln Lys  
 85 90 95

Glu Gly Gly Ser Gly Gly Ser Ala Arg Lys Cys Ser Leu Thr Gly Lys  
 100 105 110

Trp Thr Asn Asp Leu Gly Ser Asn Met Thr Ile Gly Ala Val Asn Ser  
 115 120 125

Arg Gly Glu Phe Thr Gly Thr Tyr Ile Thr Ala Val Thr Ala Thr Ser  
 130 135 140

Asn Glu Ile Lys Glu Ser Pro Leu His Gly Thr Gln Asn Thr Ile Asn  
 145 150 155 160

Lys Ser Gly Gly Ser Thr Thr Val Phe Thr Gly Gln Cys Phe Ile Asp  
 165 170 175

Arg Asn Gly Lys Glu Val Leu Lys Thr Met Trp Leu Leu Arg Ser Ser  
 180 185 190

Val Asn Asp Ile Gly Asp Asp Trp Lys Ala Thr Arg Val Gly Ile Asn  
 195 200 205

Ile Phe Thr Arg Leu Arg Thr Gln Lys Glu Gly Gly Ser Gly Gly Ser  
 210 215 220

Ala Arg Lys Cys Ser Leu Thr Gly Lys Trp Thr Asn Asp Leu Gly Ser  
 225 230 235 240

Asn Met Thr Ile Gly Ala Val Asn Ser Arg Gly Glu Phe Thr Gly Thr  
 245 250 255

Tyr Ile Thr Ala Val Thr Ala Thr Ser Asn Glu Ile Lys Glu Ser Pro  
 260 265 270

Leu His Gly Thr Gln Asn Thr Ile Asn Lys Arg Thr Gln Pro Thr Phe  
 275 280 285

Gly Phe Thr Val Asn Trp Lys Phe Ser Glu  
 290 295

<210> 3  
 <211> 6  
 <212> PRT  
 <213> Artificial sequence  
 <223> linker

<400> 3

Gly Gly Ser Gly Gly Ser  
 1 5

<210> 4  
 <211> 31  
 <212> DNA  
 <213> Artificial sequence  
 <223> primer

<400> 4  
 ctgctagatc tatggtgcac gcaacctccc c

31

<210> 5  
 <211> 19  
 <212> DNA  
 <213> Artificial sequence  
 <223> primer

<400> 5  
 cctggcagag aggccggga

19

<210> 6  
 <211> 20  
 <212> DNA  
 <213> Artificial sequence  
 <223> primer

<400> 6  
 aagaggaccc agcccacctt

20

<210> 7  
<211> 36  
<212> DNA  
<213> Artificial sequence  
<223> primer

<400> 7  
ggagcctccg gagcctccct ctttctgtgt gcgcag 36

<210> 8  
<211> 36  
<212> DNA  
<213> Artificial sequence  
<223> primer

<400> 8  
ggaggctccg gaggctccgc cagaaagtc tcgctg 36

<210> 9  
<211> 31  
<212> DNA  
<213> Artificial sequence  
<223> primer

<400> 9  
tgggcaagct tcacttggtg atggtgtttt g 31

<210> 10  
<211> 21  
<212> DNA  
<213> Artificial sequence  
<223> primer

<400> 10  
aagtccacca ctgtcttcac g 21

<210> 11  
<211> 32  
<212> DNA  
<213> Artificial sequence  
<223> primer

<400> 11  
agacaaagct tcactctgaa aacttccaat tg 32

<210> 12  
<211> 38  
<212> DNA  
<213> Artificial sequence  
<223> primer

<400> 12  
gtggtggatc cgccggactt gttgatggtg ttttgtgt 38

<210> 13  
<211> 29  
<212> DNA  
<213> Artificial sequence  
<223> primer

<400> 13  
ccggcgatc caccactgtc ttcacgggc

29

<210> 14  
<211> 20  
<212> DNA  
<213> Artificial sequence  
<223> primer

<400> 14  
agggtcggct cgaacatctt

20

<210> 15  
<211> 20  
<212> DNA  
<213> Artificial sequence  
<223> primer

<400> 15  
aagatgttgc agccgaccct

20

<210> 16  
<211> 23  
<212> DNA  
<213> Artificial sequence  
<223> primer

<400> 16  
cacaggcacc cacatcacag ccg

23

<210> 17  
<211> 23  
<212> DNA  
<213> Artificial sequence  
<223> primer

<400> 17  
cggctgtgat gtgggtgcct gtg

23

<210> 18  
<211> 18  
<212> DNA  
<213> Artificial sequence  
<223> primer

<400> 18  
ggcggatcta ccactgtc

18

<210> 19

<211> 18  
<212> DNA  
<213> Artificial sequence  
<223> primer

<400> 19  
gacagtggta gatccgcc 18

<210> 20  
<211> 29  
<212> DNA  
<213> Artificial sequence  
<223> primer

<400> 20  
ccggcagatc taccactgtc ttcacgggc 29

<210> 21  
<211> 40  
<212> DNA  
<213> Artificial sequence  
<223> primer

<400> 21  
atcctcggat cccgatccg aacctccctc tgaaaacttc 40

<210> 22  
<211> 46  
<212> DNA  
<213> Artificial sequence  
<223> primer

<400> 22  
ggctctgggtg gctggatccg gctctggcag cggcaggacc cagccc 46

<210> 23  
<211> 20  
<212> DNA  
<213> Artificial sequence  
<223> primer

<400> 23  
ctacaaatgt ggtatggctg 20

<210> 24  
<211> 581  
<212> PRT  
<213> Gallus gallus

<400> 24

Met Val His Ala Thr Ser Pro Leu Leu Leu Leu Leu Leu Ser Leu  
1 5 10 15

Ala Leu Val Ala Pro Gly Leu Ser Ala Arg Lys Arg Thr Gln Pro Thr

20	25	30
Phe Gly Phe Thr Val Asn Trp Lys Phe Ser Glu Ser Thr Thr Val Phe 35 40 45		
Thr Gly Gln Cys Phe Ile Asp Arg Asn Gly Lys Glu Val Leu Lys Thr 50 55 60		
Met Trp Leu Leu Arg Ser Ser Val Asn Asp Ile Gly Asp Asp Trp Lys 65 70 75 80		
Ala Thr Arg Val Gly Ile Asn Ile Phe Thr Arg Leu Arg Thr Gln Lys 85 90 95		
Glu Gly Gly Ser Gly Gly Ser Ala Arg Lys Cys Ser Leu Thr Gly Lys 100 105 110		
Trp Thr Asn Asp Leu Gly Ser Asn Met Thr Ile Gly Ala Val Asn Ser 115 120 125		
Arg Gly Glu Phe Thr Gly Thr Tyr Ile Thr Ala Val Thr Ala Thr Ser 130 135 140		
Asn Glu Ile Lys Glu Ser Pro Leu His Gly Thr Gln Asn Thr Ile Asn 145 150 155 160		
Lys Ser Gly Gly Ser Thr Thr Val Phe Thr Gly Gln Cys Phe Ile Asp 165 170 175		
Arg Asn Gly Lys Glu Val Leu Lys Thr Met Trp Leu Leu Arg Ser Ser 180 185 190		
Val Asn Asp Ile Gly Asp Asp Trp Lys Ala Thr Arg Val Gly Ile Asn 195 200 205		
Ile Phe Thr Arg Leu Arg Thr Gln Lys Glu Gly Gly Ser Gly Gly Ser 210 215 220		
Ala Arg Lys Cys Ser Leu Thr Gly Lys Trp Thr Asn Asp Leu Gly Ser 225 230 235 240		
Asn Met Thr Ile Gly Ala Val Asn Ser Arg Gly Glu Phe Thr Gly Thr 245 250 255		
Tyr Ile Thr Ala Val Thr Ala Thr Ser Asn Glu Ile Lys Glu Ser Pro 260 265 270		

Leu His Gly Thr Gln Asn Thr Ile Asn Lys Arg Thr Gln Pro Thr Phe  
275 280 285

Gly Phe Thr Val Asn Trp Lys Phe Ser Glu Gly Gly Ser Gly Ser Gly  
290 295 300

Ser Gly Ser Gly Ser Gly Arg Thr Gln Pro Thr Phe Gly Phe Thr Val  
305 310 315 320

Asn Trp Lys Phe Ser Glu Ser Thr Thr Val Phe Thr Gly Gln Cys Phe  
325 330 335

Ile Asp Arg Asn Gly Lys Glu Val Leu Lys Thr Met Trp Leu Leu Arg  
340 345 350

Ser Ser Val Asn Asp Ile Gly Asp Asp Trp Lys Ala Thr Arg Val Gly  
355 360 365

Ile Asn Ile Phe Thr Arg Leu Arg Thr Gln Lys Glu Gly Gly Ser Gly  
370 375 380

Gly Ser Ala Arg Lys Cys Ser Leu Thr Gly Lys Trp Thr Asn Asp Leu  
385 390 395 400

Gly Ser Asn Met Thr Ile Gly Ala Val Asn Ser Arg Gly Glu Phe Thr  
405 410 415

Gly Thr Tyr Ile Thr Ala Val Thr Ala Thr Ser Asn Glu Ile Lys Glu  
420 425 430

Ser Pro Leu His Gly Thr Gln Asn Thr Ile Asn Lys Ser Gly Gly Ser  
435 440 445

Thr Thr Val Phe Thr Gly Gln Cys Phe Ile Asp Arg Asn Gly Lys Glu  
450 455 460

Val Leu Lys Thr Met Trp Leu Leu Arg Ser Ser Val Asn Asp Ile Gly  
465 470 475 480

Asp Asp Trp Lys Ala Thr Arg Val Gly Ile Asn Ile Phe Thr Arg Leu  
485 490 495

Arg Thr Gln Lys Glu Gly Gly Ser Gly Gly Ser Ala Arg Lys Cys Ser  
500 505 510

Leu Thr Gly Lys Trp Thr Asn Asp Leu Gly Ser Asn Met Thr Ile Gly  
515 520 525

Ala Val Asn Ser Arg Gly Glu Phe Thr Gly Thr Tyr Ile Thr Ala Val  
530 535 540

Thr Ala Thr Ser Asn Glu Ile Lys Glu Ser Pro Leu His Gly Thr Gln  
545 550 555 560

Asn Thr Ile Asn Lys Arg Thr Gln Pro Thr Phe Gly Phe Thr Val Asn  
565 570 575

Trp Lys Phe Ser Glu  
580

<210> 25

<211> 1746

<212> DNA

<213> Gallus gallus

<221> DNA

<223> DNA sequence which codes for scAvd of SEQ ID NO 24

<400> 25

atggtgcacg caacctcccc gctgctgctg ctgctgctgc tcagcctggc tctggtggct	60
cccggcctct ctgccaggaa gaggaccag cccacctttg gcttcaccgt caattggaag	120
ttttcagagt ccaccactgt cttcacgggc cagtgcctca tagacaggaa tgggaaggag	180
gtcctgaaga ccatgtggct gctgcggtca agtgtaatg acattggtga tgactggaaa	240
gctaccaggg tcggcatcaa catcttcact cgcctgcgca cacagaagga gggaggctcc	300
ggaggctccg ccagaaagtg ctgctgact gggaaatgga ccaacgatct gggctccaac	360
atgaccatcg gggctgtgaa cagcagaggt gaattcacag gcacctacat cacagccgta	420
acagccacat caaatgagat caaagagtca cactgcatg ggacacaaaa caccatcaac	480
aagtccggcg gatccaccac tgtcttcacg ggccagtgt tcatagacag gaatgggaag	540
gaggtcctga agaccatgtg gctgctgcgg tcaagtgtta atgacattgg tgatgactgg	600
aaagctacca gggtcggcat caacatcttc actcgcctgc gcacacagaa ggagggaggc	660
tccggaggct ccgccagaaa gtgctcgctg actgggaaat ggaccaacga tctgggctcc	720
aacatgacca tcggggctgt gaacagcaga ggtgaattca caggcaccta catcacagcc	780
gtaacagcca catcaaatga gatcaaagag tcaccactgc atgggacaca aaacaccatc	840
aacaagagga cccagcccac ctttggtctc accgtcaatt ggaagttttc agagggaggt	900
tccggatcgg gatccggctc tggcagcggc aggaccagc ccacctttgg cttcaccgtc	960

```

aattggaagt tttcagagtc caccactgtc ttcacgggcc agtgcttcat agacaggaat 1020
gggaaggagg tcctgaagac catgtggctg ctgcgggtcaa gtgttaatga cattgggtgat 1080
gactggaaag ctaccagggt cggcatcaac atcttcactc gcctgcgcac acagaaggag 1140
ggaggctccg gaggtccgc cagaaagtgc tcgctgactg ggaaatggac caacgatctg 1200
ggctccaaca tgaccatcgg ggctgtgaac agcagagggtg aattcacagg cacctacatc 1260
acagccgtaa cagccacatc aaatgagatc aaagagtcac cactgcatgg gacacaaaac 1320
accatcaaca agtccggcgg atccaccact gtcttcacgg gccagtgtt catagacagg 1380
aatgggaagg aggtcctgaa gaccatgtgg ctgctgcggt caagtgttaa tgacattggt 1440
gatgactgga aagctaccag ggtcggcatc aacatcttca ctgcctgcg cacacagaag 1500
gagggaggct cgggaggctc cgccagaaag tgctcgctga ctgggaaatg gaccaacgat 1560
ctgggctcca acatgaccat cggggctgtg aacagcagag gtgaattcac aggcacctac 1620
atcacagccg taacagccac atcaaagag atcaaagagt caccactgca tgggacacaa 1680
aacaccatca acaagaggac ccagcccacc ttgggcttca ccgtcaattg gaagttttca 1740
gagtga 1746

```

<210> 26

<211> 897

<212> DNA

<213> Gallus gallus

<221> DNA

<223> DNA sequence which codes for dcAvd of SEQ ID 2

<400> 26

```

atgggtgcacg caacctcccc gctgctgctg ctgctgctgc tcagcctggc tctgggtggct 60
cccggcctct ctgccaggaa gaggaccag cccacctttg gcttcaccgt caattggaag 120
ttttcagagt ccaccactgt cttcacgggc cagtgttca tagacaggaa tgggaaggag 180
gtcctgaaga ccatgtggct gctgcgggtca agtgttaatg acattggtga tgactggaaa 240
gctaccagggt tcggcatcaa catcttcact cgcctgcgca cacagaagga gggaggctcc 300
ggaggctccg ccagaaagtg ctgcgtgact gggaaatgga ccaacgatct gggctccaac 360
atgaccatcg gggctgtgaa cagcagagggt gaattcacag gcacctacat cacagccgta 420
acagccacat caaatgagat caaagagtca cactgcatg ggacacaaaa caccatcaac 480
aagtcggcg gatccaccac tgtcttcacg ggccagtgt tcatagacag gaatgggaag 540
gaggtcctga agaccatgtg gctgctgcgg tcaagtgtta atgacattg tgatgactgg 600
aaagctacca gggtcggcat caacatcttc actgcctgc gcacacagaa ggagggaggc 660

```

tccggaggct cgcagagaaa gtgctcgctg actgggaaat ggaccaacga tctgggctcc 720  
 aacatgacca tcggggctgt gaacagcaga ggtgaattca caggcaccta catcacagcc 780  
 gtaacagcca catcaaatga gatcaaagag tcaccactgc atggggacaca aaacaccatc 840  
 aacaagagga cccagcccac ctttggttc accgtcaatt ggaagttttc agagtga 897

<210> 27  
 <211> 31  
 <212> DNA  
 <213> Artificial sequence  
 <223> primer cp34\_C1

<400> 27  
 aatttaagct tatgttacgg ctgtgatgta g 31

<210> 28  
 <211> 290  
 <212> PRT  
 <213> Gallus gallus

<400> 28

Met Asn Lys Pro Ser Lys Phe Ala Leu Pro Leu Ala Phe Ala Ala Val  
 1 5 10 15

Thr Ala Ser Gly Val Ala Ser Ala Gly Thr Gln Pro Thr Phe Gly Phe  
 20 25 30

Thr Val Asn Trp Lys Phe Ser Glu Ser Thr Thr Val Phe Thr Gly Gln  
 35 40 45

Cys Phe Ile Asp Arg Asn Gly Lys Glu Val Leu Lys Thr Met Trp Leu  
 50 55 60

Leu Arg Ser Ser Val Asn Asp Ile Gly Asp Asp Trp Lys Ala Thr Arg  
 65 70 75 80

Val Gly Ile Asn Ile Phe Thr Arg Leu Arg Thr Gln Lys Glu Gly Gly  
 85 90 95

Ser Gly Gly Ser Ala Arg Lys Cys Ser Leu Thr Gly Lys Trp Thr Asn  
 100 105 110

Asp Leu Gly Ser Asn Met Thr Ile Gly Ala Val Asn Ser Arg Gly Glu  
 115 120 125

Phe Thr Gly Thr Tyr Ile Thr Ala Val Thr Ala Thr Ser Asn Glu Ile

12/13

130                      135                      140  
 Lys Glu Ser Pro Leu His Gly Thr Gln Asn Thr Ile Asn Lys Ser Gly  
 145                      150                      155                      160  
 Gly Ser Lys Glu Ser Pro Leu His Gly Thr Gln Asn Thr Ile Asn Lys  
 165                      170                      175  
 Arg Thr Gln Pro Thr Phe Gly Phe Thr Val Asn Trp Lys Phe Ser Glu  
 180                      185                      190  
 Ser Thr Thr Val Phe Thr Gly Gln Cys Phe Ile Asp Arg Asn Gly Lys  
 195                      200                      205  
 Glu Val Leu Lys Thr Met Trp Leu Leu Arg Ser Ser Val Asn Asp Ile  
 210                      215                      220  
 Gly Asp Asp Trp Lys Ala Thr Arg Val Gly Ile Asn Ile Phe Thr Arg  
 225                      230                      235                      240  
 Leu Arg Thr Gln Lys Glu Gly Gly Ser Gly Gly Ser Ala Arg Lys Cys  
 245                      250                      255  
 Ser Leu Thr Gly Lys Trp Thr Asn Asp Leu Gly Ser Asn Met Thr Ile  
 260                      265                      270  
 Gly Ala Val Asn Ser Arg Gly Glu Phe Thr Gly Thr Tyr Ile Thr Ala  
 275                      280                      285  
 Val Thr  
 290

<210> 29  
 <211> 873  
 <212> DNA  
 <213> Gallus gallus

<400> 29  
 atgaacaaac cctccaaatt cgctctgccg cttgccttcg ccgccgttac ggcctctggt 60  
 gttgcctcgg ctggtaccca gccaccttt ggcttcaccg tcaattggaa gttttcagag 120  
 tccaccactg tcttcacggg ccagtgttc atagacagga atgggaagga ggtcctgaag 180  
 accatgtggc tgctgcggtc aagtgttaat gacattggtg atgactggaa agctaccagg 240  
 gtcggcatca acatcttcac tcgcctgcgc acacagaagg agggaggctc cggaggctcc 300  
 gccagaaagt gctcgctgac tgggaaatgg accaacgata tgggctccaa catgaccatc 360

ggggctgtga acagcagagg tgaattcaca ggcacctaca tcacagccgt aacagccaca 420  
tcaaagtaga tcaaagagtc accactgcat gggacacaaa acaccatcaa caagtccggc 480  
ggatccaaag agtcaccact gcatgggaca caaaacacca tcaacaagag gaccagccc 540  
acctttggct tcaccgtcaa ttggaagttt tcagagtcca cactgtctt cacgggccag 600  
tgcttcatag acaggaatgg gaaggaggtc ctgaagacca tgtggctgct gcggtcaagt 660  
gttaatgaca ttggtgatga ctggaaagct accagggtcg gcatcaacat cttcactcgc 720  
ctgcgcacac agaaggaggg aggctccgga ggctccgcca gaaagtgctc gctgactggg 780  
aatggacca acgatctggg ctccaacatg accatcgggg ctgtgaacag cagaggtgaa 840  
ttcacaggca cctacatcac agccgtaaca taa 873